

*Please provide the following information, and submit to the NOAA DM Plan Repository.*

**Reference to Master DM Plan (if applicable)**

*As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.*

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

**1. General Description of Data to be Managed****1.1. Name of the Data, data collection Project, or data-producing Program:**

2004 Connecticut Coastline Lidar Mapping

**1.2. Summary description of the data:**

LIDAR data is remotely sensed high-resolution elevation data collected by an airborne collection platform. Using a

combination of laser rangefinding, GPS positioning and inertial measurement technologies; LIDAR instruments are able to make

highly detailed Digital Elevation Models (DEMs) of the earth's terrain, man-made structures and vegetation. This data was

collected at submeter resolution to provide nominal 1m spacing of collected points. Two returns were recorded for each pulse

in addition to an intensity value.

Original contact information:

Contact Org: NOAA Office for Coastal Management

Phone: 843-740-1202

Email: coastal.info@noaa.gov

**1.3. Is this a one-time data collection, or an ongoing series of measurements?**

One-time data collection

**1.4. Actual or planned temporal coverage of the data:**

2004-10-08

**1.5. Actual or planned geographic coverage of the data:**

W: -72.908092, E: -72.279933, N: 41.45389, S: 41.240042

**1.6. Type(s) of data:**

*(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)*

**1.7. Data collection method(s):**

*(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)*

**1.8. If data are from a NOAA Observing System of Record, indicate name of system:****1.8.1. If data are from another observing system, please specify:****2. Point of Contact for this Data Management Plan (author or maintainer)****2.1. Name:**

NOAA Office for Coastal Management (NOAA/OCM)

**2.2. Title:**

Metadata Contact

**2.3. Affiliation or facility:**

NOAA Office for Coastal Management (NOAA/OCM)

**2.4. E-mail address:**

coastal.info@noaa.gov

**2.5. Phone number:**

(843) 740-1202

**3. Responsible Party for Data Management**

*Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.*

**3.1. Name:****3.2. Title:**

Data Steward

**4. Resources**

*Programs must identify resources within their own budget for managing the data they produce.*

**4.1. Have resources for management of these data been identified?****4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):**

## 5. Data Lineage and Quality

*NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.*

### 5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible

*(describe or provide URL of description):*

#### Process Steps:

- 2004-10-01 00:00:00 - Data Collection: Using a LH Systems ALS50 Light Detection and Ranging (LiDAR) system, 41 flight lines of high density (submeter ground sample distance) data were collected over areas in coastal Connecticut (approximately 300 square kilometers). Two returns were recorded for each laser pulse along with an intensity value for each return. The data acquisition occurred in one (1) mission on October 8, 2004. Three (3) airborne global positioning system (GPS) base stations were used to support the LiDAR data acquisition: Moriches 1 continuously operating reference station (CORS) ARP, NGS point P36, and one station Woolpert located using static GPS positioning methods, Madison CP. In addition, twenty-two control points were surveyed through fast-static GPS methods to support the final accuracy analysis and tied into the National Geodetic Survey (NGS) points Moriches CORS and P36.
- 2004-11-01 00:00:00 - Airborne GPS Processing: Airborne GPS data was differentially processed and integrated with the post processed IMU data to derive a smoothed best estimate of trajectory (SBET). The SBET was used to reduce the LiDAR slant range measurements to a raw reflective surface for each flight line. The overlap between flight lines was removed to provide a homogeneous coverage, and the coverage was classified to extract a bare earth digital elevation model (DEM). Airborne GPS is differentially processed using the GrafNAV V4.10 software by Waypoint Consulting of Calgary, Alberta, Canada. The PDOP and distance separation is as follows: P36: Maximum PDOP = 3.58 (maximum) Average Distance Separation: 17 km Madison CP: Maximum PDOP = 3.58 (maximum) Average Distance Separation: 19 km IMU data is processed using the PosPac V4.2 software by Applanix Corporation of Richmond Hill, Ontario, Canada. The reflective surface is derived using the ALS Post Processor software by Leica Geosystems GIS & Mapping Division of Atlanta, Georgia. The classification and quality control (QC) of LiDAR data is carried out using a combination of proprietary software and TerraScan software by Terrasolid Limited of Helsinki, Finland. Two (2) coverages were delivered in the LAS file format: bare-earth and above ground features.
- 2004-11-01 00:00:00 - IMU data Processing: IMU data provides information concerning roll, pitch and yaw of collection platform during collection event. IMU information allows the pulse vector to be properly placed in 3D space allowing the distance from the aircraft reference point to be properly positioned on the elevation model surface. IMU data is processed using the PosPac V4.2 software by Applanix Corporation of Richmond Hill, Ontario, Canada.
- 2004-11-01 00:00:00 - Reflective Surface Generation: The reflective surface is derived using the ALS Post Processor software by Leica Geosystems GIS & Mapping

Division of Atlanta, Georgia.

- 2004-12-01 00:00:00 - LIDAR Point Classification The classification and quality control (QC) of LiDAR data is carried out using a combination of proprietary software and TerraScan software by Terrasolid Limited of Helsinki, Finland.
- 2005-01-01 00:00:00 - Output LAS Files Random LIDAR points maintained in UTM coordinate system converted to Geographic projection with units of Decimal Degrees
- 2005-01-01 00:00:00 - Transfer to delivery media: Data is transferred from hard-disk to DVD delivery media using a Primera Bravo DVD/CDROM disc publishing hardware.
- 2006-09-27 00:00:00 - The NOAA Office for Coastal Management (OCM) received files in LAS format. The files contained LiDAR intensity and elevation measurements. OCM performed the following processing on the data to make it available within the LiDAR Data Retrieval Tool (LDART): 1. The las files were converted from State Plane coordinates to Geographic coordinates. 2. The las header fields were sorted by latitude and updated.
- 2008-01-01 00:00:00 - For data management purposes, the Office for Coastal Management (OCM) converted the data from NAVD88 heights to ellipsoid heights using Geoid 03.

**5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:**

**5.2. Quality control procedures employed (describe or provide URL of description):**

## **6. Data Documentation**

*The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.*

**6.1. Does metadata comply with EDMC Data Documentation directive?**

No

**6.1.1. If metadata are non-existent or non-compliant, please explain:**

Missing/invalid information:

- 1.6. Type(s) of data
- 1.7. Data collection method(s)
- 3.1. Responsible Party for Data Management
- 4.1. Have resources for management of these data been identified?
- 4.2. Approximate percentage of the budget for these data devoted to data management
- 5.2. Quality control procedures employed
- 7.1. Do these data comply with the Data Access directive?

- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.1.2. If there are limitations to data access, describe how data are protected
- 7.4. Approximate delay between data collection and dissemination
- 8.1. Actual or planned long-term data archive location
- 8.3. Approximate delay between data collection and submission to an archive facility
- 8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

**6.2. Name of organization or facility providing metadata hosting:**

NMFS Office of Science and Technology

**6.2.1. If service is needed for metadata hosting, please indicate:****6.3. URL of metadata folder or data catalog, if known:**

<https://www.fisheries.noaa.gov/inport/item/48168>

**6.4. Process for producing and maintaining metadata**

*(describe or provide URL of description):*

Metadata produced and maintained in accordance with the NOAA Data Documentation Procedural Directive: [https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC\\_PD-Data\\_Documentation\\_v1.pdf](https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC_PD-Data_Documentation_v1.pdf)

**7. Data Access**

*NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.*

**7.1. Do these data comply with the Data Access directive?**

**7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?**

**7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:**

**7.2. Name of organization of facility providing data access:**

NOAA Office for Coastal Management (NOAA/OCM)

**7.2.1. If data hosting service is needed, please indicate:**

**7.2.2. URL of data access service, if known:**

<https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=20>

[https://coast.noaa.gov/htdata/lidar1\\_z/geoid18/data/20](https://coast.noaa.gov/htdata/lidar1_z/geoid18/data/20)

**7.3. Data access methods or services offered:**

This data can be obtained on-line at the following URL: [https://coast.noaa.gov/dataviewer](https://coast.noaa.gov/dataviewer;);

**7.4. Approximate delay between data collection and dissemination:**

**7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:**

**8. Data Preservation and Protection**

*The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.*

**8.1. Actual or planned long-term data archive location:**

*(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)*

**8.1.1. If World Data Center or Other, specify:****8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:****8.2. Data storage facility prior to being sent to an archive facility (if any):**

Office for Coastal Management - Charleston, SC

**8.3. Approximate delay between data collection and submission to an archive facility:****8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?**

*Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection*

**9. Additional Line Office or Staff Office Questions**

*Line and Staff Offices may extend this template by inserting additional questions in this section.*